Title (en)

CASCADED INTEGRATOR COMB FILTER WITH ARBITRARY INTEGER DECIMATION VALUE AND SCALING FOR UNITY GAIN

Title (de)

KASKADIERTES INTEGRATOR-KAMMFILTER MIT BELIEBIGEM GANZZAHLIGEM DEZIMIERUNGSWERT UND SKALIERUNG FÜR EINHEITSVERSTÄRKUNG

Title (fr)

FILTRE EN PEIGNE INTEGRATEUR EN CASCADE (CIC) A VALEUR DE DECIMATION A ENTIER ARBITRAIRE ET MISE A L'ECHELLE POUR GAIN UNITAIRE

Publication

EP 1938457 A2 20080702 (EN)

Application

EP 06790079 A 20060829

Priority
- US 2006033723 W 20060829
- US 21941505 A 20050902

Abstract (en)

[origin: US7102548B1] We disclose a CIC digital filter having an arbitrary-integer decimation rate. The filter has a shifter connected to its input. The shifter receives a shift control input, where the shift control input is pre-computed as equal to the integer portion of 2 raised to the base-2 logarithm of the gain of the CIC filter. There is a multiplier connected between the input and the shifter. In other embodiments, the multiplier could be connected between the input and the shifter. Sequentially-connected integrator functions are connected to the shifter (or multiplier); a decimation function receives input from the integrator functions; and sequentially-connected differentiator functions receive input from the decimation function. The decimation function has a selectable rate equal to any integer between 1 and a number equal to the predetermined maximum decimation value. The multiplier is configured to compute the product of each input data sample by a correction factor; the correction factor being pre-computed as equal to the fractional portion of 2 raised to the base-2 logarithm of the gain of the CIC filter, so as to correct the gain of the CIC filter for decimation values not a power of 2.

IPC 8 full level

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